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Impact of Fall Prevention and Home Modification Programs for Older Adults

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Background: By 2030, the number of U.S. adults aged 65 or older will more than double to about 71 million (CDC, 2015). With these rapidly changing demographics, fall prevention and home modification programs provide preventative support for aging in place. The lack of fall prevention services is both costly and impacts quality of life for older adults. $50 million dollars were spent on medical costs due to falls in 2015 (Florence, et al., 2018). By reviewing the literature and critically evaluating the results of the research studies, conclusions can be made as to the most effective fall prevention methods for older adults.

1 Ask: Research Question

Do well elders who receive education and training in fall prevention/home modification show a reduction in falls?

2a Acquire: Search Terms

Search Terms: fall prevention program, occupational therapy, and home modifications.

2b Acquire: Selected Articles

Chase et al. (2012): Level I systematic review. Proposed the following research question: “What is the evidence for the effect of home modification and fall prevention programs on the performance of community-dwelling older adults?” Evidence was evaluated and organized into categories.

Lee et al. (2013): Level II RCT. Effects of a multifactorial fall prevention program on fall incidence and physical function in community-dwelling older adults were critically analyzed.

Li et al. (2013): This Level III RCT investigated the dissemination potential of a Tai Ji Quan-based program evidenced to reduce fall risk in older adults in outpatient settings.

3a Appraise: Study Quality

Chase et al. (2012): Systematic review of 31 RCT and 2 Level II studies in which all articles each included separate control groups. Utilized specific search terms to find articles from 1990-November 2008. All articles were interventions delivered in community settings. Limitations: Several studies were not blinded, had high dropout rates, small sample sizes, and were based on self-report.

Lee et al. (2013): N=616; randomly assigned to either an intervention group (IG) or control group (CG) based on fall risk level. Intervention provided treatment to community-dwelling older adults in their homes. Participants were recruited based on age who had fallen in the past year or who demonstrated risk of falling determined by the TUG and PPA assessments. The primary outcome measure was fall incidence, as measured by proportion of participants who sustained a fall during the 12-month follow-up. Limitations: low functional performance of some patients at baseline.

Li et al. (2013): N=379; single group pre/post test study design provided to community-dwelling older adults in their home. Eligibility criteria was community-dwelling older adults 65 years or older. Limitations: Process of decisions regarding referral were not specified and no system put in place for participants to provide feedback to providers who evaluate fall risks.

3b Appraise: Study Results

Chase et al. (2012): Older adults who followed a physical activity program had fewer falls and experienced reduced morbidity and mortality in relation to falls. The multifactorial approach utilized in these studies demonstrates the opportunity to reduce fall rates.

Photo Credit: Pittsburgh's NPR News Station

Lee et al. (2013): The cumulative 1-year fall incidence was 25.2% in the IG and 27.6% in the CG. The pre/post test was the monthly phone calls to participants to determine their 12 month fall rates. The PPA fall risk index, reaction time, postural stability in regards to sway, TUG test scores ($p<.001$), and GDS improved more in the IG participants than the CG participants. The fall incidence rate for the IG participants was lower than the CG participants, though not by a large margin.

Li et al. (2013): Of 564 individuals referred, 283 completed the program (75% retention), and 212 of these attended 75% or more of the 48 sessions (Page 2142). Participants reported a reduction in falls, with an incidence rate of 0.13 falls per person-month, and showed significant improvement from baseline in all outcome measures. (Page 2142)

4 Apply: Conclusions for Practice

Occupational therapists and other members of the interdisciplinary team must work together to incorporate exercise, education, home modifications, and health education into treatment services. Homecare, community settings, and outpatient facilities are appropriate for these services to older adults that are represented in the research body.

References:

Chase, C. A., Mann, K., Wasek, S., & Arbesman, M. (2012). Systematic review of the effect of home modification and fall prevention programs on falls and the performance of community-dwelling older adults. *American Journal of Occupational Therapy*, 66(3), 284-291. doi:10.5014/ajot.2012.005017

Florence CS, Bergen G, Atherly A, Burns ER, Stevens JA, Drake C. Medical Costs of Fatal and Nonfatal Falls in Older Adults. *Journal of the American Geriatrics Society*, 2018 March, DOI:10.1111/jgs.15304

General Information | Emergency Preparedness for Older Adults | Healthy Aging | CDC. (n.d.). Retrieved from https://www.cdc.gov/aging/emergency/general.htm

Lee, H., Chang, K., Tsauo, J., Hung, J., Huang, Y., & Lin, S. (2013). Effects of a multifactorial fall prevention program on fall incidence and physical function in community-dwelling older adults with risk of falls. *Archives of Physical Medicine and Rehabilitation*, 94(4). doi:10.1016/j.apmr.2012.11.037

Li, F., Harmer, P., Stock, R., Fitzgerald, K., Stevens, J., Gladieux, M., . . . Voit, J. (2013). Implementing an evidence-based fall prevention program in an outpatient clinical setting. *Journal of the American Geriatrics Society*, 61(12), 2142-2149. doi:10.1111/jgs.12509

Occupational therapy, multifactorial intervention, home modification, and exercise intervention can reduce falls in adults 65 years and older.